Universität Duisburg-Essen
Lehrstuhl für Technische Chemie II
Prof. Dr. Mathias Ulbricht

Technisch-Chemisches Kolloquium

Montag, **3.12.2018**

15 Uhr c.t.

Raum S03 V00 E59 (Campus Essen)

Microparticles and microdroplets meet membranes

Prof. Dr. Viatcheslav Freger

The Wolfson Department of Chemical Engineering

Technion – Israel Institute of Technology, Haifa

https://chemeng.technion.ac.il/viatcheslav-freger/

The talk will present two topics motivated by the problem of membrane fouling. The first part focuses on the problem of particle or microorganism deposition to surfaces as an initial stage of particulate or bio-fouling. A critical parameter in this process, important for developing low-fouling surfaces, is the strength of particle adhesion, which is difficult to measure. We demonstrate that this parameter may be directly deduced from measured QCM response to adhering particles using a new quantitative model and confirm this using different surfaces and particles, including bacteria. The second part focuses on the problem of oil-water separation, in which complete and cost-efficient removal of colloidal oil and fouling by oil have been major challenges. We present a novel carbon-nanotube-only membrane with attractive separation characteristics. Owing to the optimal combination of ~30 nm pores with a hydrophilic surface obtained via simple electro-treatment, this robust membrane completely removes dispersed oil without excessive fouling.

Gäste sind herzlich willkommen!